

Title (en)  
HIGH MOBILITY TRANSISTORS

Title (de)  
TRANSISTOREN MIT HOHER MOBILITÄT

Title (fr)  
TRANSISTORS À MOBILITÉ ÉLEVÉE

Publication  
**EP 3087603 A1 20161102 (EN)**

Application  
**EP 14875258 A 20141229**

Priority  
• US 201361921453 P 20131228  
• US 201414573021 A 20141217  
• US 2014072585 W 20141229

Abstract (en)  
[origin: WO2015100456A1] An integrated circuit (100) containing an n-channel finFET (106) and a p-channel finFET (110) has a dielectric layer (112) over a silicon substrate (102). The fins of the finFETs (106, 110) have semiconductor materials with higher mobilities than silicon. A fin of the n-channel finFET (106) is on a first silicon-germanium buffer (118) in a first trench (114) through the dielectric layer (112) on the substrate (102). A fin of the p-channel finFET (110) is on a second silicon-germanium buffer (132) in a second trench (116) through the dielectric layer (112) on the substrate (102). The fins extend at least 10 nanometers above the dielectric layer (112). The fins are formed by epitaxial growth on the silicon-germanium buffers (118, 132) in the trenches (114, 116) in the dielectric layer (112), followed by CMP planarization down to the dielectric layer (112). The dielectric layer (112) is recessed to expose the fins. The fins may be formed concurrently or separately.

IPC 8 full level  
**H01L 27/092** (2006.01); **B82Y 40/00** (2011.01); **H01L 21/8238** (2006.01)

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